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13. ABSTRACT *(Maximum 200 Words)*

Among young breast cancer patients, desires for future childbearing may impact treatment decisions and quality of life. Although changes in adjuvant therapy have enabled maintenance of fertility, many oncologists encourage their patients to delay childbearing fearing recurrent disease may be stimulated by hormonal elevations of pregnancy. The current retrospective study based on medical record review was conducted collaboratively with researchers of the Kaiser Permanente Research Foundation in Northern California. Computerized files enabled the identification of 105 breast cancer cases with a history of subsequent pregnancy and 335 cases matched by age, year, and stage at breast cancer diagnosis. A total of 136 women [31%] experienced a recurrence and 99 died of breast cancer. Cox proportional hazards analyses indicated survival did not differ by subsequent pregnancy status. Among the 105 with a history of subsequent pregnancy, 54 women carried to term; the pregnancy was interrupted by miscarriage [11 cases], induced abortion [39 cases], or an ectopic pregnancy [1 case]. Although the study population is small and the duration of follow-up after pregnancy outcome limited, subsequent pregnancy outcome did not influence breast cancer survival. These findings are reassuring and are in agreement with other published reports.

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Does Subsequent Pregnancy Influence Breast Cancer Survival?

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DOES SUBSEQUENT PREGNANCY INFLUENCE BREAST CANCER SURVIVAL?

INTRODUCTION:

Among pre-menopausal breast cancer patients, especially those women who have delayed childbearing to complete graduate education or to further their careers, recommendations concerning the safety of pregnancy may significantly affect their quality of life [1]. Although a survey conducted in 1994 reported that patients were concerned about the potential risk of recurrence, some women indicated that having children was an important post-treatment goal which would greatly enhance their quality of life. In addition, some newly diagnosed young breast cancer patients consider the impact on subsequent fertility when making treatment decisions. As the rate of earlier stage at diagnosis has increased resulting in improved survival and more young breast cancer patients retain cyclical menstrual cycles following less toxic and more limited treatment with chemotherapy, the potential for childbearing is more frequently questioned by patients [2]. Therefore, more breast cancer patients are retaining or regaining their fertility which has increased their interest in knowing the impact of normal reproductive patterns on their probability of long term survival. Several investigators have suggested that knowing childbearing is safe after breast cancer may greatly enhance the emotional response to breast cancer of young patients.

More than 100 years ago breast cancer was shown to be hormone dependent [3]; therefore, clinicians in the past routinely cautioned against pregnancy after breast cancer fearing the hormonal elevations of pregnancy would stimulate latent foci of carcinoma creating an unnecessary risk of disease recurrence [2]. From the limited studies of the effect of subsequent pregnancy on survival published during more than four decades the suggested latency between breast cancer diagnosis and pregnancy varied considerably from a brief interval to a minimum of ten years [4,5]. However, these recommendations were published over an extended interval during which the greater emphasis on screening has resulted in earlier stage at diagnosis and fewer patients requiring extensive chemotherapy. Therefore, the guidance from publications studies of the past regarding delay before subsequent pregnancy is of limited value. Although some physicians remain concerned about the potential adverse effect of pregnancy on prognosis, they also recognize the psychosocial needs of their younger breast cancer patients [2] and increasing the importance of this retrospective study.

BODY:

Overview of Scope of Work

This study, to assess the safety of subsequent pregnancy on breast cancer prognosis, was conducted collaboratively with the research team of the Kaiser Permanente Medical Care Program [KPMCP] located in Northern California. The extensive computerized files maintained by the health maintenance organization enabled this retrospective study, based on abstracting of KPMCP charts, of to be conducted. Multiple computer files were linked including the following:

1. Computerized records of breast cancer cases diagnosed at age 44 or younger were linked with hospitalization files for pregnancy related conditions to identify women who have had one or more admissions for maternity care after breast cancer diagnosis. Dates of breast cancer

diagnosis and pregnancy outcome were compared in order to eliminate women who were pregnant at the time of diagnosis of breast cancer [Figure 1, Appendix].

2. Cases identified with a history of post-treatment pregnancy were linked with SEER files to obtain stage at diagnosis. SEER records indicated local, regional or distant breast cancer stage.

3. The medical records, retained in outpatient and inpatient KPMCP facilities, were abstracted for each breast cancer case with a history of subsequent pregnancy to determine months from diagnosis to date of last menstrual period [LMP] and breast cancer stage at the onset of first pregnancy. Stage and duration of survival were factors required for identification of appropriate comparison cases. Additional data on breast cancer risk and prognostic factors were also recorded on data forms [Sample form in Appendix].

4. To identify 4 comparison cases without a history of subsequent pregnancy, the computerized file of breast cancer cases lacking a maternity related hospital admission were searched by age, year and stage at disease as well as survival time. Year of diagnosis was included to control for changes in treatment modalities during the past three decades. Breast cancer status at LMP prior to pregnancy and length of survival from diagnosis to subsequent pregnancy were used as matching criterion to help control for a potential survival advantages among women electing to become pregnant, called the 'healthy mother effect' [6], which implies that breast cancer cases free of symptoms would be more likely to consider childbearing. Approximately 10 potential comparison cases were identified by computer for each woman with a positive post diagnosis pregnancy in order to select 4 with matching criteria. Although the number of cases without a positive post-treatment pregnancy history was substantial, the matching criteria restricted the pool of potential comparison cases even though acceptable differences in age at diagnosis and year of diagnosis were increased from 3 to 8 years.

5. Data from medical records were abstracted for the comparison cases using the same instrument as for those with a subsequent pregnancy. California death records, routinely linked with KPMCP files, provided date and cause of death through December 31, 1998 for all breast cancer cases.

6. Statistical analyses were performed to compare baseline characteristics of women with and without a history of subsequent pregnancy and matched analyses were conducted to assess survival differences by pregnancy history.

Preparation for Statistical Analysis

The data management staff of KPMCP conducted abstracting of all data and computerization of medical record abstract forms. After KPMCP membership information and California death dates were added to the data file, personal identifiers were removed. The data file was then provided to the research team in New York for analysis.

The data was initially reviewed to assess the success of matching. Basic data checks were also conducted to detect any illogical data entries; none were noted. Matching criteria were carefully

analyzed and follow-up information was determined in order to restrict the data file to the breast cancer cases meeting the study protocol and objectives. Initial analyses included descriptive statistics of the study population and characteristics of the subsequent pregnancies.

Estimating Months of Survival

The Kaiser data file identified several dates from which survival time could be calculated. These included: date of diagnosis, date of last menstrual period before first subsequent pregnancy, date of subsequent pregnancy outcome, date of recurrence [if any] recorded in the medical chart, date of death [derived from the California death registry or reported in the medical record], date of last clinical notation in the medical chart, and last year of membership. Survival analyses were conducted using each appropriate outcome; however, findings did not differ. Although last year of membership provided the longest follow-up time for cases included in this study, last chart date provided a more conservative and accurate portrayal of the disease status at the time of last clinical encounter. Therefore, the analyses presented in this report used last chart date as the end point for cases without a date of recurrence or date of death.

The follow-up time for analysis was defined as the number of months from breast cancer diagnosis to last chart date or death date. This timeframe was based on the assumption that within each set the follow-up time from diagnosis to date of subsequent pregnancy was comparable in compliance with the matching criteria requiring comparable months of survival from diagnosis to LMP prior to subsequent pregnancy.

Survival time was also calculated for matched sets using months from LMP to last chart date or death date. This follow-up interval enabled analysis of the impact of subsequent pregnancy on survival among comparable breast cancer cases. The data file included deaths from the California Automated Mortality Linkage and Information System through December 31, 1998. A second survival analysis was performed in which cases without a date of death were censored at 12/31/98 regardless of additional follow-up time abstracted from the KPMCP medical charts.

Because it was found that some individuals included in the study population may not have been fertile during the required period, each analysis was also conducted for both the full population including 440 cases and after eliminating the 5 comparison cases who were unable to become pregnant after breast cancer due to prior hysterectomy or oophorectomy. No differences were noted when the results of these analyses were compared; therefore, the statistical results in this report reflect the findings from the 440 cases. The semi-parametric Cox Proportional Hazards Model was used to assess the relationship between survival outcomes and subsequent pregnancy adjusting for potential confounding factors including prior pregnancy, family history of breast and ovarian cancer, ER & PR status of primary breast tumor, chemotherapy, radiation therapy and hormonal therapy.

105 Match Sets Available for Analysis

Data from each match set was assessed to insure comparability of the case with a subsequent pregnancy to the comparison cases. One set was excluded due to differing stage of disease at diagnosis; the comparison cases had invasive disease while the case with subsequent pregnancy was noted to have *in situ* breast cancer. Two additional sets were dropped from the data file due

to lack of any follow-up information after subsequent pregnancy. The survival months from diagnosis to last menstrual period was inadequate for 4 comparison cases prior to subsequent pregnancy of their matches cases; these cases were excluded.

The number of comparison cases available for each matched set varied. The data file provided for 29 sets in which 4 comparison cases were successfully matched for each breast cancer patient with a subsequent pregnancy. More limited sets included 2 with only one comparison case, 5 sets with two, and 69 sets with three matched comparison cases. The total study population included 440 breast cancer cases of whom 105 had a history of one or more pregnancies after breast cancer treatment. **[Figure 1]**

As required by study design, cancer stage was matched within each set: 10% were treated for *in situ* disease, 61% with disease localized to the breast, and 29% with regional spread to one or more axillary lymph nodes. All study subjects were less than age 45 at diagnosis. Matching within sets by age at diagnosis was within 8 years for 97% while 85% had a difference of 5 years or less. Year of diagnosis was within 5 years for 97% of the matched sets.

Descriptive Statistics

Age at diagnosis ranged from 23 to 45 years with a mean of 34 years; the mean age of women with a subsequent pregnancy was 32 years compared with a mean of 34 for comparison cases. This difference was not statistically significant. A majority [65%] of the 440 breast cancer cases was white; 14% were black, 7% Hispanic, 7% Asian, and 7% were of other ethnic groups. Race was not a matching criteria.

A similar proportion of cases with and without subsequent pregnancy were nulliparous before diagnosis, 21% and 19% respectively. A majority of cases in the study [81%] had at least one pregnancy prior to breast cancer diagnosis, with an average of 2.6 prior pregnancies among parous women. Therefore, pregnancy history prior to breast cancer diagnosis was not a predictor of subsequent pregnancy.

Table 1. Parity prior to breast cancer diagnosis

# Prior Pregnancies	With Subsequent Pregnancy N=105	Without Subsequent Pregnancy N=335
Nulliparous	22 [21%]	62 [19%]
One	28 [27%]	49 [15%]
Two	24 [23%]	95 [28%]
Three	10 [9%]	68 [20%]
Four or more	21 [20%]	60 [18%]

A positive family history of breast cancer in a first and/or second degree relative was recorded in the medical record for 35% of the study population. The proportion was slightly higher [37%] for comparison cases than for women who had a subsequent pregnancy [30%]. Documentation of ovarian family history was similar in the two groups with less than 4% having either a first or second degree relative affected.

Among the 105 individuals who had one or more subsequent pregnancies, the outcome of the first pregnancy included 54 [51%] live births, 51 [49%] interrupted pregnancies including 39 with an induced abortion, 11 who miscarried, and one woman who had an ectopic pregnancy. The interval between breast cancer diagnosis to last menstrual period before first subsequent pregnancy ranged from 1 – 143 months. Women who carried to term had a mean interval of delay before pregnancy of 25 months. This interval was similar for the 11 women who experienced a miscarriage [mean of 28 months]; however, a slightly shorter mean interval of 20 months was recorded for women who terminated the pregnancy by induced abortion. Among the 21 women who became pregnant within six months of breast cancer diagnosis, 11 terminated the pregnancy by abortions [52%], 8 carried to term [38%], one woman had a miscarriage, and one had an ectopic pregnancy. Medical record notations did not provide any information on the reasons for induced abortion among these breast cancer cases.

Method of first detection of breast cancer was recorded for 433 cases indicating that breast self examination enabled tumor palpation by 368 [85%] cases. The proportion did not differ by subsequent pregnancy history. The other 15% of cases were detected by clinical exam [6%] or mammography [9%]. Detection information obtained from Kaiser medical records reflects the less frequent use of mammography among young women as well as the changing patterns of mammography screening over time. Greater than 45% of the 440 cases were diagnosed before 1985.

Breast Cancer Treatment

More study subjects were treated by mastectomy [65%] than breast conserving surgery [35%]. No differences were noted by subsequent pregnancy status. Axillary node dissection was recorded for 86% of the cases, a similar proportion for both study groups. Tumor size was recorded for 254 cases; 58% were 2cm or greater with a mean size of 2.5 cm. Tumor size was similar regardless of subsequent pregnancy status. As required by matching criteria, axillary lymph node status was comparable in each matched set. A history of positive nodes was exactly matched although the total number of lymph node metastases within a matched set differed slightly but not significantly.

Of the 151 participants [35%] who received radiation therapy, subsequent pregnancy cases did not differ from comparison cases. Medical abstracting records indicated that 203 [46%] women were treated with chemotherapy including 39% of those with a subsequent pregnancy and 49% without. The mean number of months of chemotherapy was 7.5 with a range from 1 to 42 months; the duration of treatment did not differ significantly by subsequent pregnancy. Of the 37 participants [9%] who received hormonal therapy after diagnosis, three had a post-treatment pregnancy and 34 were comparison cases.

Although estrogen and progesterone receptors are now considered prognostic factors, this information was not available for many of the earlier cases included in the data file. Receptor status was recorded for 131 women of whom 44% were receptor positive including 29 who subsequently became pregnant and 102 who did not.

A total of 136 women [31%] experienced a recurrence. Of these 42 [31%] were local to the remaining breast tissue or chest wall, 22 [16%] were regional to lymph nodes or surrounding

tissue, and 72 [53%] were recurrences in distant organs. Among the 105 women with a history of subsequent pregnancy, 34 [32%] experienced a recurrence and 102 [31%] women without a subsequent pregnancy experienced a recurrence. Follow-up records indicated that 25% of the study population died. Of these, 104 were cancer related deaths and 99 of these were due to breast cancer. Among the women with a subsequent pregnancy, breast cancer was the cause of death for the 27 [26%] who died; among those without a history of pregnancy after diagnosis, 83 women died [25%] and of these 72 [94%] died of breast cancer.

Among the 34 cases with a history of one or more subsequent pregnancies who experienced recurrent disease, in 5 cases the recurrence preceded subsequent pregnancy. Of the 9 women who developed recurrent disease within 12 months of pregnancy, four had term births, three elected to terminate the pregnancy by induced abortion, one had a miscarriage, and one pregnancy was ectopic. These 9 women died during the follow-up period. Among women whose recurrence predated their subsequent pregnancy, three terminated their pregnancy by abortion, one carried to term, and one experienced a miscarriage. Three of these women with recurrent disease prior to pregnancy [one abortion, one full term birth, and one miscarriage] died during the follow-up period.

Follow-Up Time

The mean length of follow-up from date of breast cancer diagnosis to either date of death or last chart date was 120.8 months for the 440 cases, 120 months for women with a subsequent pregnancy and 121 for women without. The average time from date of first diagnosis to recurrence or last chart date was 107.8 months for all included cases with a mean of 103 months for cases with a subsequent pregnancy and 109 months for the comparison cases. Time from LMP of the case with subsequent pregnancy was used to compare recurrence or death events with comparison cases. The table below indicates mean number of months for the follow-up intervals used in the survival analyses.

Table 2: Mean follow-up intervals applied in the survival analyses

Follow-Up Interval	All Cases	With Subsequent Pregnancy	Without Subsequent Pregnancy
Diagnosis to California Death Date	145.2	149.1 months	144.0 months
LMP to California Death Date	122.2	125.8 months	121.1 months
Diagnosis to Recurrence/Last Chart Date	107.8	103.0 months	109.3 months
LMP to Recurrence/Last Chart Date	88.6	84.2 months	90.0 months

Hazards Models

The matched Cox proportional hazards model was used to assess survival differences by subsequent pregnancy history. In each matched model, the independent variables were subsequent pregnancy, family history of breast cancer, family history of ovarian cancer, prior pregnancy history, chemotherapy treatment, radiation treatment, and hormonal therapy. The results of these analyses indicated no predictor was significantly associated with recurrence or breast cancer death.

When recurrence was the outcome of interest, the disease free survival women with a subsequent pregnancy did not differ from matched women after assessing the time from diagnosis to recurrence/last chart date or from LMP to recurrence/last chart date [Table 3].

Table 3. Hazard Ratio for Recurrence from Cox Model

Outcome	Follow-Up Time	Hazard Ratio	p-value
Recurrence	Dx to Recurrence or Last Chart Date	1.4	0.5
	LMP to Recurrence or Last Chart Date	1.4	0.5

When breast cancer death was the outcome assessed, survival did not differ by subsequent pregnancy status as noted in Table 4.

Table 4. Hazard Ratio for death Due to Breast Cancer from Cox Model

Outcome	Follow-Up Time	Hazard Ratio	p-value
Breast Cancer Death	Dx to Death or Last Chart Date	0.97	0.95
	LMP to Death or Last Chart Date	0.97	0.95

Comparisons with Published Studies

The results of this retrospective study, based on data abstracted from the medical records of a well established health maintenance organization, are in agreement with several recent publications of both prospective and retrospective study designs. A population-based study conducted in Finland by Sankila et al included a cohort of 2,548 women in the tumor registry; a subsequent pregnancy was recorded for 4% of the cases. A nested matched study was conducted including 91 cases with a subsequent term delivery and 471 matched cases without subsequent pregnancy [6]. Women without subsequent pregnancy had a significantly greatly risk of dying from breast cancer; the authors termed this survival advantage the 'healthy mother effect' although 6 of the 91 patients who gave birth died of breast cancer.

In a prospective follow-up of cases from a case/control study, Velentgas and colleagues reported on 53 [9%] women in their cohort of the 618 patients aged $\leq$40 at diagnosis who had a subsequent pregnancy [7]. Although the study is small and follow-up was relatively short, pregnancy after diagnosis did not appear to adversely affect survival. However, these authors noted a 24% experienced miscarriage suggesting that recency of treatment may have precipitated pregnancy loss. Another population-based study by Kroman et al from Denmark observed 173 [3%] of 5,725 breast cancer cases had one or more post diagnosis pregnancies [8]; 10% experienced a miscarriage and 92 elected to terminate the pregnancy by induced abortion. They noted that full-term pregnancy was associated with a non-significant decreased risk of death from breast cancer; however, neither miscarriage nor induced abortion appeared to influence prognosis. Kroman and colleagues suggested that patients may have elected pregnancy termination fearing potential recurrence of their breast cancer. In this retrospective study of

Kaiser breast cancer patients, 11% experienced miscarriage, a proportion similar to the proportion reported by Kroman et al.

Due to effective therapeutic chemotherapy and radiotherapy for breast cancer patients with recurrent disease, survival has been significantly prolonged after initial breast cancer recurrence. Therefore, survival analyses require adequate follow-up time for appropriate analysis of factors associated with death from breast cancer especially when time to recurrence is included in the available data file.

Since the team of investigators who proposed this retrospective study recognized the limitations of relying on Kaiser medical record abstracting, the comprehensive prospective study of young breast cancer patients being conducted by Dr. Jeanne Petrek and colleagues is of vital importance. Until data from the prospective cohort are available for meaningful analyses, the reassuring findings of this retrospective study and other reports provide guidance to clinicians and their patients.

Study Limitations

This retrospective study has several major limitations resulting from follow-up of patients whose membership in Kaiser may not have been consistent or who may have received clinical care at other facilities which may have resulted in limited information on breast cancer status in the medical charts and potential misclassification of cases on recurrence. The following chart reflects the number of months of follow-up for all individuals in the study from date of breast cancer diagnosis to last chart date. After excluding cases who had died, 11% with a subsequent pregnancy and 18% of women without a subsequent pregnancy had less than 48 months follow-up [Table 5].

Table 5: Months of Follow-up after Diagnosis from Medical Chart

Follow-Up Time: Months from Diagnosis to Last Chart Date [or Death]	**Subsequent Pregnancy N=105**	**No Subsequent Pregnancy N=335**
0	0	0
1 - 24	3	17
25 - 48	9	42
49 - 72	16	31
73 - 96	19	58
97 - 120	14	51
>120	44	136
	11% ≤48 months	**18% ≤ 48 months**

When follow-up time is measured as the number of months from LMP date prior to subsequent pregnancy to last clinical assessment recorded in the medical records, less than 48 months follow-up is available for post pregnancy 21% and 26% of the comparison cases [Table 6]. Since successful breast cancer treatment is often referred to survival at a minimum of five years while others consider a ten year follow-up interval essential for survival analyses, the current study would benefit from additional follow-up information.

Table 6: Follow-up from Last Menstrual Period to Last Chart Date

Follow-Up Months from LMP to Last Chart Date [or Death]	Subsequent Pregnancy	No Subsequent Pregnancy
0	0	1
1 – 24	12	36
25 – 48	10	50
49 – 72	22	52
73 – 96	19	58
97 – 120	12	35
>120	30	103
	21% ≤48 months	**26% ≤48 months**

Several other study limitations must be noted. Death data pertains only to cases residing in California after diagnosis. Any deaths that occurred out of state are not documented in the data set. Although this detracts from the completeness of the data file, there is no reason to suspect that deaths occurring outside California vary according to subsequent pregnancy status and, therefore, should not significantly influence study results. In addition, pregnancies that may have been experienced by the study subjects but not recorded in the medical records or occurring after the breast cancer patient terminated her membership in the Kaiser program would not be included in the analysis. Therefore, some comparison cases may have actually experienced a subsequent pregnancy and be miscoded.

KEY RESEARCH ACCOMPLISHMENTS:

- 105 women with a history of subsequent pregnancy have been matched to 335 comparison breast cancer cases to assess the risk of recurrence and death from breast cancer
- Matching criteria were of necessity broadened to include an adequate number of comparison cases for meaningful analyses
- Neither recorded recurrences nor deaths due to breast cancer differed by subsequent pregnancy status
- Results from this retrospective analyses of medical record data are similar to finding from previously reported prospective and retrospective studies

REPORTABLE OUTCOMES:

- Preliminary findings were reported at the Department of Defense Era of Hope meeting in June 2000

- Preliminary results were reported to breast cancer patients participating in the Columbia Presbyterian Women at Risk program in January 2001

- Results were presented at epidemiology rounds in October 2001 to students and faculty of the Mailman School of Public Health

- Manuscripts are being prepared although additional follow-up time would provide reassurance of no adverse effects of term or interrupted subsequent pregnancy on disease free survival

CONCLUSIONS:

Since the risk of developing breast cancer is increased with older age at first birth and a 70% increase in first births to women ages 40 to 44 have been reported between 1990 and 1999, the incidence of breast cancer among young women during their childbearing years may rise. Therefore, the safety of pregnancy following breast cancer will grow in importance to patients and their clinicians. The results of this study and others published in the last 10 years are reassuring. Additional analyses are being conducted to assess survival in relation to the optimum interval of delay between diagnosis and first subsequent pregnancy and the total number of subsequent pregnancies. Additional follow-up has been requested to confirm the findings observed in this report with a minimum of five years considered desirable.

Findings from the prospective menstrual cycle maintenance study will be compared with these and future retrospective analyses in relation to the self-selective nature of breast cancer patients in these studies. Analyses will focus on women desiring childbearing or considering pregnancy interruption and the effects of these pregnancy have on survival. The complimentary nature of the retrospective study and the prospective study provide opportunities for important contributions to understanding more of the biology of breast cancer growth and dissemination.

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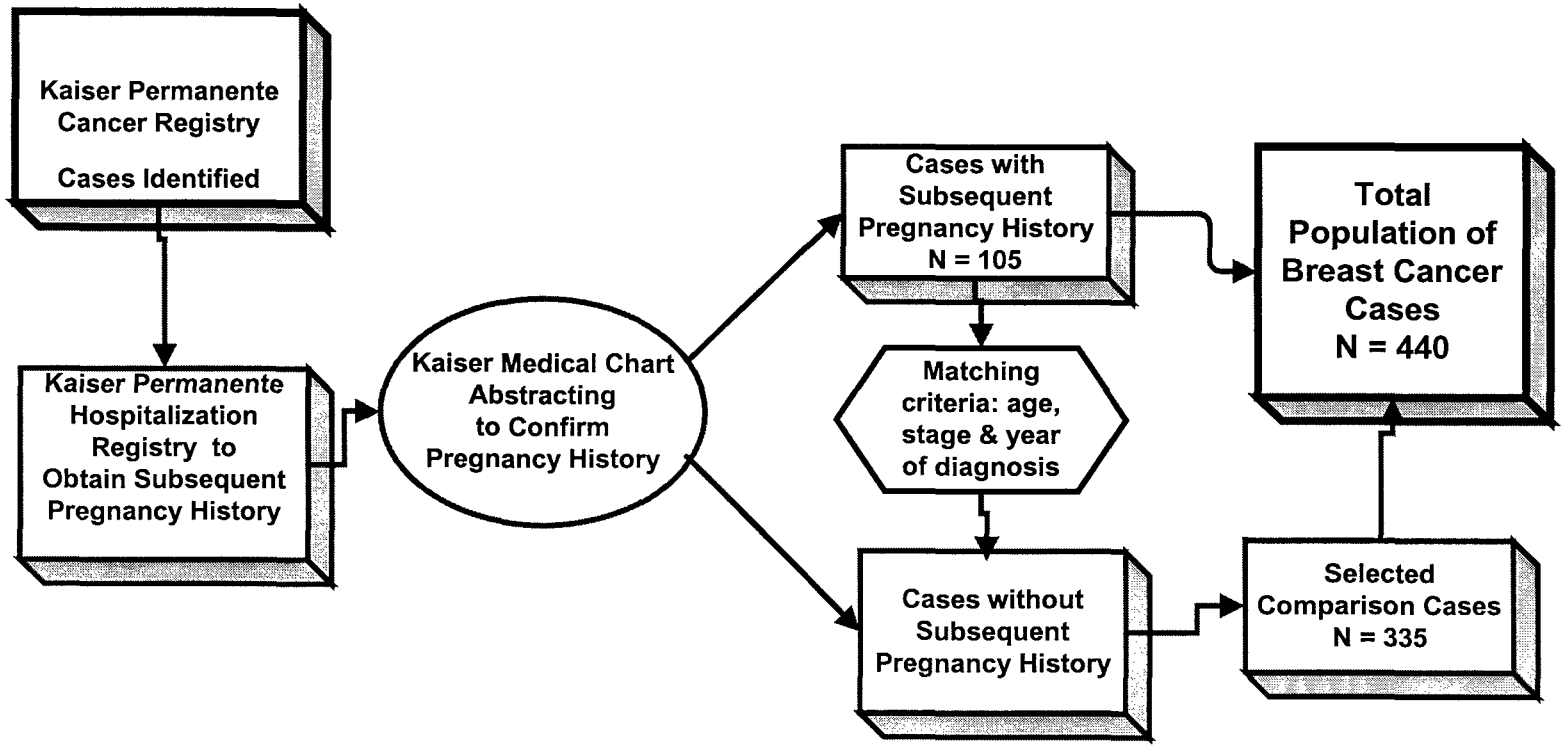
Figure1: Does subsequent pregnancy influence breast cancer survival?



PREGNANCY AFTER BREAST CANCER WORKSHEET

NAME:_____ START DATE_____

MR#:_____ COMPLETED:_____

DOB:_____ CASE#:_____CONTROL:_____

CHART STATUS: C: _____ **M:** _____

_____ _____

_____ _____

PRIMARY KAISER FACILITY:_____

RACE: **1**-HISPANIC **2**-ASIAN
3-BLACK **4**-WHITE
5-OTHER:_____

RELIGION:_____

CRITERIA FOR STUDY

DIAGNOSIS CONFIRMED?----------YES NO

AGE < 45 AT DX?----------YES NO

ABLE TO BECOME PREGNANT?----------YES NO

CONCURRENT PREGNANCY WITH DX?----------YES NO

KAISER MEMBER AT TIME OF DX----------YES NO

STATUS AT FIRST TRIMESTER OF PG SAME?.....YES NO

CRITERIA FOR STUDY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
DATE OF LAST MENSTRUAL CYCLE DOCUMENTED												
DATE OF (+) PREGNANCY TEST												
DATE OF CA DX CONFIRMED BY PATHOLOGY												
DATE OF FIRST S/S DOCUMENTED												
Recurrence? yes____ no____ no data _____												
Date of Recurrence _________												

S/S = Signs/Symptoms DX = Diagnosis Date PRG = Pregnancy Confirmed Codes: 1 4 5 = Preg Outcome

PRIMARY CANCER #1

DATE OF *FIRST* DX OF CANCER:_____DX:_____

STAGE AT DX: *Carcinoma In Situ* · *Localized Disease* *Tumor with Regional Spread* *Distant Metastasis*

METHOD OF FIRST DETECTION:____SELF EXAM Ht_____FT'_____IN" Wt____(2.2Kg = 1Lb)

_____CLINICAL EXAM

_____BIOPSY (Procedure / Date):_____

_____MAMMOGRAM_____Negative

_____Suspicious

_____Not Done

_____Positive

FIRST BREAST SURGERY DATE:_____*MASTECTOMY* *LUMPECTOMY* *WEDGE*

PROCEDURE:_____

AXILLARY DISSECTION: *Y* *N* NODES#_____*(+)*_____ TUMOR SIZE:___ ___ . ___*(CM)*

TUMOR TYPE: *IN SITU* *INVASIVE / INFILTRATIVE*

TUMOR *ER* Status: (+)_____(-)_____*Borderline*_____*N/A* < 3 = (-) 3 - 100 = (+) > 100 = (+++)

TUMOR *PR* Status: (+)_____(-)_____*Borderline*_____*N/A* 0 - 5 = (-) 5 - 100 = (+) > 100 = (+++)

ADJUVANT TREATMENT CANCER #1

RADIATION DATES:_____*HIGHEST* RAD's RECEIVED_____

CHEMOTHERAPY *START*_____*STOP*_____*TOTAL MONTHS*_____

ADRIAMYCIN (DOXORUBICIN)	LEUKERAN	CYCLOPHOSPHAMIDE (CYTOXIN)
VINCRISTINE	TAXOL	5-FLUOROURACIL (5FU)
METHOTREXATE	MELPHALAN	MITOMYCIN
PREDNISONE	VINBLASTINE	OTHER:_____

HORMONE THERAPY *START*_____*STOP*_____*TOTALMONTHS*_____

HALOTESTIN	TAMOXIFEN	DES
ESTROGENS	ANDROGENS	OTHER:_____

SURGERY CANCER #1

DATE OF SECOND BREAST SURGERY:_____REASON FOR SX: *RESIDUAL* *RECURRENCE (After TX)*

SECOND BREAST SURGERY TYPE: *MASTECTOMY* *LUMPECTOMY* *WEDGE* *LOCAL EXCISION*

PROCEDURE:_____

AXILLARY DISSECTION: *Y* *N* NODES#_____*(+)*_____ TUMOR SIZE:___ ___ . ___*(CM)*

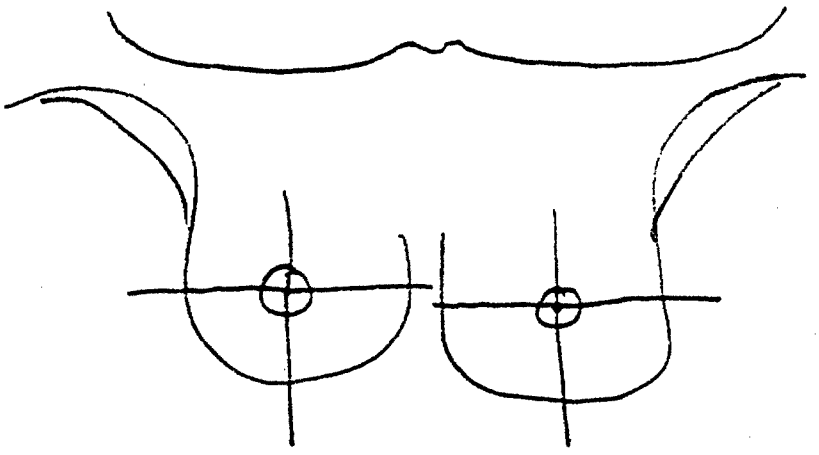
DATE RECURRENCE *FIRST* DETECTED:_____

DATE_____LOCAL *(SKIN, CHEST WALL, REMAINING BREAST TISSUE AFTER LUMPECTOMY)*

DATE_____REGIONAL *(AXILLARY NODES, SUPERCLAVICULAR NODES)*

DATE_____DISTANT *(FURTHEST MOST SEVERE)*:_____

FAMILY CANCER HISTORY	BREAST	OVARIAN	OTHER
1 - *PRIMARY* FAMILY MEMBER (Mother, Sister, Daughter)			
2 - *SECONDARY* RELATIVE (Aunts, Grandmother)			
3 - *BOTH* PRIMARY AND SECONDARY RELATIVES			
4 - *NO* FAMILY HISTORY			



PRIOR PREGNANCIES

FERTILITY TX WITH HORMONES: YES_____NO TOTAL PREGNANCIES____BIRTH CONTROL METHOD_____

TRYING TO BECOME PREGNANT?_____HX OF FERTILITY PROBLEMS?_____

PREGNANCY RELATED COMPLICATIONS?_____

STERILIZATION DATE:_____PROCEDURE:_____REASON:_____

PREGNANCY OUTCOMES

1 - LIVE BIRTH - (Term) **2** - LIVE BIRTH - (Pre-Term) **3** - STILLBIRTH
4 - ABORTION (GEST. AGE) **5** - MISCARRIAGE **6** - ECTOPIC / TUBAL
7 - UNCERTAIN **8** - OTHER_____

PREGNANCY #1: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #2: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #3: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #4: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #5: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #6: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #7: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #8: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #9: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #10: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #11: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #12: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #13: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #14: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #15: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #16: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

PREGNANCY #17: OUTCOME:____DATE:_____NORMAL NEWBORN? *Y N:* _____

SUBSEQUENT PREGNANCIES

FERTILITY TX WITH HORMONES: YES_____NO TOTAL PREGNANCIES_____

DESIRES PREGNANCY AFTER CANCER?_____

HISTORY OF FERTILITY PROBLEMS?_____

HISTORY OF PREGNANCY RELATED COMPLICATIONS?_____

STERILIZATION DATE:_____PROCEDURE:_____REASON_____

BIRTH CONTROL AFTER PREGNANCY:_____TYPE:_____DURATION:_____

PREGNANCY OUTCOMES

1 - LIVE BIRTH - (Term) 2 - LIVE BIRTH - (Pre-Term) 3 - STILLBIRTH
4 - ABORTION (Gest. age) 5 - MISCARRIAGE 6 - ECTOPIC / TUBAL
7 - UNCERTAIN 8 -OTHER _____

PREGNANCY #1: OUTCOME:____DATE:_____NORMAL NEWBORN? Y *N:* _____

PREGNANCY #2: OUTCOME:____DATE:_____NORMAL NEWBORN? Y *N:* _____

PREGNANCY #3: OUTCOME:____DATE:_____NORMAL NEWBORN? Y *N:* _____

PREGNANCY #4: OUTCOME:____DATE:_____NORMAL NEWBORN? Y *N:* _____

PREGNANCY #5: OUTCOME:____DATE:_____NORMAL NEWBORN? Y *N:* _____

PREGNANCY #6: OUTCOME:____DATE:_____NORMAL NEWBORN? Y *N:* _____

PREGNANCY #7: OUTCOME:____DATE:_____NORMAL NEWBORN? Y *N:* _____

PREGNANCY #8: OUTCOME:____DATE:_____NORMAL NEWBORN? Y *N:* _____

PREGNANCY #9: OUTCOME:____DATE:_____NORMAL NEWBORN? Y *N:* _____

PREGNANCY #10: OUTCOME:____DATE:_____NORMAL NEWBORN? Y *N:* _____

DATE OF LAST KAISER CONTACT:_____ DATE OF DEATH:_____

STATUS AT LAST CONTACT:
1 - ALIVE - *FREE OF DISEASE*
2 - ALIVE - *RECURRENT DISEASE*
3 - DEAD - *FROM BREAST CANCER (date)*_____
4 - DEAD - *OTHER THAN BREAST CANCER (mechanism)*_____
5 - DEAD - *UNABLE TO DETERMINE*

KAISER PATIENT CURRENTLY? ***Y*** ***N*** ***UNK***

FORWARDING INFORMATION / COMMENTS / ADDITIONAL ADJUVENT RESTART DATES:_____

PRIMARY CANCER #2

DATE OF SECOND PRIMARY DX OF CANCER:_____DX:_____

HEIGHT_____FT_____IN" WEIGHT_____(2.2KG = 1 lb)

METHOD OF *FIRST* DETECTION:_____SELF PALPITATION
_____CLINICAL EXAM
_____BIOPSY (Procedure)_____
_____MAMMOGRAM: (+) (-) SUSPICIOUS NOT DONE

FIRST BREAST SURGERY DATE:_____PROCEDURE:_____

AXILLARY DISSECTION: *Y* *N* NODES#_____*(+)*_____ TUMOR SIZE:___ ___ . ___*(CM)*

TUMOR TYPE: *IN SITU* *INVASIVE / INFILTRATIVE*

TUMOR *ER* STATUS: (+)_____(-)_____*Borderline, N/A* TUMOR *PR* STATUS: (+)_____(-)_____*Borderline, N/A*

ADJUVANT TREATMENT CANCER #2

RADIATION DATES:_____*HIGHEST* RAD's RECEIVED_____

CHEMOTHERAPY *START*_____*STOP*_____*TOTAL MONTHS*_____

ADRIAMYCIN (DOXORUBICIN)	LEUKERAN	CYCLOPHOSPHAMIDE (CYTOXIN)
VINCRISTINE	TAXOL	5-FLUOROURACIL (5FU)
METHOTREXATE	MELPHALAN	MITOMYCIN
PREDNISONE	VINBLASTINE	OTHER:_____

HORMONE THERAPY *START*_____*STOP*_____*TOTAL MONTHS*_____

HALOTESTIN	TAMOXIFEN	DES
ESTROGENS	ANDROGENS	OTHER:_____

SECOND SURGERY CANCER #2

DATE OF SECOND BREAST SURGERY:_____REASON FOR SX: *RESIDUAL* *RECURRENCE*

SECOND BREAST SURGERY TYPE: *MASTECTOMY* *LUMPECTOMY* *WEDGE* *LOCAL EXCISION*

AXILLARY DISSECTION: *Y* *N* NODES#_____*(+)*_____ TUMOR SIZE:___ ___ . ___*(CM)*

DATE RECURRENCE FIRST DETECTED:_____

DATES_____*LOCAL* (SKIN, CHEST WALL, REMAINING BREAST TISSUE AFTER LUMPECTOMY)

DATES_____*REGIONAL* (AXILLARY NODES, SUPERCLAVICULAR NODES)

DATES_____*DISTANT* (FURTHEST MOST SEVERE):_____

DEPARTMENT OF THE ARMY
US ARMY MEDICAL RESEARCH AND MATERIEL COMMAND
504 SCOTT STREET
FORT DETRICK, MARYLAND 21702-5012

REPLY TO
ATTENTION OF:

MCMR-RMI-S (70-1y) 1 Apr 03

MEMORANDUM FOR Administrator, Defense Technical Information Center (DTIC-OCA), 8725 John J. Kingman Road, Fort Belvoir, VA 22060-6218

SUBJECT: Request Change in Distribution Statement

1. The U.S. Army Medical Research and Materiel Command has reexamined the need for the limitation assigned to technical reports written for this Command. Request the limited distribution statement for the enclosed accession document numbers be changed to "Approved for public release; distribution unlimited." Copies of these reports should be released to the National Technical Information Service.

2. Point of contact for this request is Ms. Judy Pawlus at DSN 343-7322 or by e-mail at judy.pawlus@det.amedd.army.mil.

FOR THE COMMANDER:

Encl

PHYLLIS M. RINEHART
Deputy Chief of Staff for
Information Management

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